MULTI-FEATURE CLASSIFICATION MEMORY STRUCTURE FOR ASSOCIATIVE MATCHING

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5 **ABSTRACT**

The present invention describes a method and an apparatus of multi-feature lookup process using multi-feature classification memory ("CM"). In one embodiment of the present invention, the method defines various features, offered in the router, into a feature hierarchy. Individual associated CMs are merged into a combined associated multi-feature CM. The feature rules for packet processing are merged according to the feature hierarchy and the multi-feature CM is populated with the merged rules. The multi-feature CM includes combined packet-processing rules for multiple features. The multi-feature CM eliminates the need for individual associated CMs. The memory space in the multi-feature CM is shared by various feature rules.